Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of simulating ~~movement~~ advection of a plurality of elements through space, the method comprising:

generating a plurality of 2D grids, each 2D grid being independent and having a plurality of grid points;

associating movement information with each 2D grid point;

changing the movement information associated with the 2D grid points over a time period that includes discrete intervals;

defining a region of 3D space using the 2D grids;

advecting the plurality of elements through the region of 3D space using the movement information associated with the 2D grids; and

displaying the simulated ~~movement~~ advection of the plurality of elements.

2. (Currently Amended) A method of simulating elements advecting through space, the method comprising:

generating a plurality of 2D grids, each 2D grid being independent and having a plurality of grid points, each grid point having movement information;

defining a region of 3D space using the 2D grids;

generating a plurality of elements in the region of 3D space, each element having a location;

for each element, determining movement information for an element based on the location of the element in the region of 3D space, wherein the determination includes:

identifying points on the 2D grids that lie on both sides of the element at the location in the region of 3D space;

determining movement information at the points on the 2D grids; and

interpolating between the movement information at the points on the 2D grids to determine element movement information for the element at the location in 3D space to simulate advecting of the element; and

displaying the advecting of the simulated elements.

3. (Original) The method of claim 2 wherein the movement information includes a 2D vector.

4. (Currently Amended) An apparatus for simulating ~~movement~~ advection of a plurality of elements through space, the apparatus comprising:

a computing device to generate a plurality of 2D grids, each 2D grid being independent and having a plurality of grid points,

movement information is associated with each 2D grid point,

wherein the movement information associated with the 2D grid points of the 2D grids changes over a time period that includes discrete intervals,

the computing device also defines a region of 3D space using the 2D grids, advects the plurality of elements through the region of 3D space using the movement information associated with the 2D grids and displays the simulated movement of the plurality of elements.